Core Conservation Practices:

Paths and Barriers Perceived by Small and Limited Resource Farmers[1]

EXECUTIVE SUMMARY

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Small and limited resource farms comprise more than three-quarters of the operations in Alabama, Georgia, and Mississippi, yet this segment of the farm population has disproportionately low levels of adoption of established measures for conserving soil and protecting groundwater. Four sets of conservation practices—Conservation Tillage (CT), Crop Nutrient Management (CNM), Integrated Weed and Pest Management (IPM), and Conservation Buffers (CB)—are the central focus of efforts by conservation agencies to improve water quality. The purpose of this report is to describe the need and preferences for technical assistance to achieve national conservation objectives—specifically the adoption and diffusion of core conservation practices—on small and limited resource farms in the Deep South. Using statewide samples from Alabama, Georgia, and Mississippi, we present detailed profiles of the use and understanding of these practices among small and limited resources farmers. In particular, we compare the perceptions, practices, and program participation patterns of black and white small and limited resource farmers.

The number of black-owned farms is declining at a more rapid rate than other farms. This trend has called into question the treatment of minority farmers have experience in receiving federal assistance. Many minority and limited-resource farmers blame government policies and practices for the severe decline in farm ownership by minorities, especially black farmers, in the last several decades.

Minority farm advocates blame farm program regulations that—intentionally or not—prevent minority and limited-resource farmers from accessing the programs that have helped larger non-minority producers survive the changes in agriculture in the last 50 years. And they identify institutional insensitivity to the differing needs of minority and limited-resource customers and pubic agency tendencies to neglect their responsibility to reach out and serve all that need assistance. Some farm advocates liken

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minority farmers to an "endangered species".

The disparity in participation and treatment of non-minority and minority farmers may be partially accounted for by the smaller average size of minority and female-operated farms, their lower average crop yields, and their greater likelihood not to plant program crops, as well as less sophisticated technology, insufficient collateral, poor cash flow, and poor credit ratings. However, representatives of minority and female farm groups point out that previous discrimination in USDA programs has helped to produce these very conditions now used to explain disparate treatment. This report provides basic information profiling the conservation practices and technical assistance preferences of black and white small farm operators, a body of information not available from any other source.

- ***NRCS Action –*** Program managers must recognize that a climate of skepticism, sometimes mistrust, in itself is a barrier to program participation among small and limited resource farmers. This clientele faces basic questions of farm survival and household poverty that must be answered before conservation problems can be addressed.

METHOD

The sampling design for the study was structured so as to yield approximately equal numbers of black and white farmers in Alabama, Georgia, and Mississippi. Data were obtained from a simple random sample of white farm operators included those operations with less than $40,000 gross annual sales. All black and other minority farm operators on established mailing lists were selected for the minority segment of the survey. Survey data were collected by mail using a self-administered instrument. A second request questionnaire was used to increase the mail response. A total of 834 farmers returned completed surveys.

Main Findings of the Study

Characteristics of Respondents

Most of the small-scale operators who responded to the study were male and due to sample selection procedures were nearly equally divided between black and white in each state. Thirty seven percent of the Alabama and Mississippi black respondents had a college education or higher. About a fourth of all operators did not work off the farm in the previous year. About 37 percent of the sample had spouses who worked 200 or more days off the farm, but differences were not significant by race or state. About half either had no farm spouse or had a spouse who did not work off the farm.

Income Sources

Farm income category differed significantly by race. More white farmers in each state reported farm incomes in the top three categories. More black farmers in each state were in the lower income categories. Row crops such as cotton, soybeans, and other items were a source of income for approximately a third of the farmers. In each state, more white farmers reported growing row crops and they were consistently more likely to report this enterprise as a source of most of their farm income. Only 2 percent of the sample raised poultry, primarily white farmers. Small and limited resource farmers are not participating in the poultry industry, one of the most technologically dynamic and economically active components of agriculture.

Conservation Tillage (CT)

Conservation tillage practices were familiar to 70 percent of the overall sample of farmers in each state, although not at all familiar to a large proportion of black farmers. A third of all the farmers viewed conservation tillage as not practical on their farms. The data suggest that many farmers have been reached by the efforts of NRCS, extension, and other public agencies, but they also suggested that many have not been contacted, convinced, and commissioned with the CT solutions that fit their farm situations. A lack of how-to information prohibited many black farmers from performing conservation techniques on their operations.

Black farmers were consistently less familiar with CT than white farmers. About a third of the respondents felt that CT would be practical on their farms. Only about 15 percent of the respondents had crop acreage planted used CT practices. More whites consistently had more land under CT than blacks. Less than 10 percent used any single CT technique. No-till and reduced-till were the overall most used tillage practices. The main perceived problems with CT were more weeds, higher herbicide costs, and high equipment costs, each cited by about 10 percent of the sample.

Education predicted each of the CT adoption variables. Respondents with more years of schooling were more familiar with CT, they thought that CT was more practical on their farms, they gave more reasons for using CT on their operations, and they had actually adopted more of the CT practices on their land. Total gross value of sales predicted familiarity with CT and the perception that it would be practical on the operator's farm. It was not significantly related to the number of reasons given nor the actual number of practices adopted.

- ***NRCS Action –*** Information for minority farmers about the benefits of CT must be customized to fit their typical farm operations. Labor and time saving should be emphasized. Information about government loan programs or other means to reduce the initial cost of equipment should be developed and distributed.

- ***NRCS Action –*** Information about CT should be presented using a format appropriate to the level of formal education of the intended audience. When working with some farmers, the sixth grade reading competency level should be used when writing brochures, newsletters, and fact sheets. Other farmers may prefer videos, photos, and displays as opposed to written text**.**

- ***NRCS Action –*** Conservation district programs that allow renting no-till drills could help to offset the expensive purchase of CT equipment. Either publicize existing equipment loan programs or work with Conservation Districts to help establish them.

Crop Nutrient Management (CNM)

Over half of the farmers in this study were familiar with crop nutrient management. Around 11 percent were very familiar. Alabama black farmers had the highest proportion that was not familiar. Almost a fourth of the sample believed that CNM practices would be practical on their operation.

More black farmers reported never using soil testing than whites by a large margin in each state. More Georgia farmers reported testing every year. Less than 10 percent of

the sample soil tested every year, and about 44 percent tested every three years or less often.

Education predicted three of the four adoption precursor variables, but not the actual frequency of soil testing. Respondents with more years of schooling were more familiar with CNM. They viewed CNM as more practical on their farms and they gave more reasons for using CNM. Whether or not the respondent farmed row crops predicted perceived practicality, the number of reasons given for CNM use, and the frequency of soil testing. The variable was not linked to differences in familiarity with CNM. Black farmers had lower frequencies of soil testing than white farmers. There were no other differences by race on the other adoption variables.

Black farmers were much more likely to say that they had not used fertilizer in the past five years. They were much less likely to be involved in row crop enterprises where fertilizer is a central tool. Almost 41 percent of the sample uses side-dressing for the application of commercial fertilizer, followed closely by at planting time and before crops are planted. White farmers tended to use more of each approach to crop fertilization.

Whites were significantly more likely to adjust the amount of fertilizer they use in different fields. The basic knowledge for such adjustments comes from soil testing. More white than black farmers in each state applied litter or manure to their fields, a statistically significant pattern. Most respondents indicated that their crop rotation cycle varied from year to year. Whites were more likely to include legumes in their rotations in each state, but only 10 percent of black Alabama operators did so.

Although soil testing is a fundamental step in economically sound and environmentally responsible farming, a third of the sample never engaged in soil testing. Given that 7 of 8 small and limited resource farmers used commercial fertilizer, and that about 1 in 5 used broiler litter on the land, the information from a soil test is a basic part of making nutrient management decisions.

- ***NRCS Action*** **–**NRCS should consider working in cooperation with local Extension to increase the number of small and limited resource farmers who test their soil. One-on-one technical assistance, with specific outreach to black farmers, must be undertaken. Assistance on how to soil test, where to take the test within the farmer's operation, and how to interpret and apply test results must be provided. The financial cost associated with soil testing must be assessed. Where appropriate, arrangements to defray the cost of a soil test also must be considered.

Integrated Pest Management (IPM)

Familiarity with Integrated Pest Management (IPM) varied significantly by race and state. About half the sample was not familiar with IPM. Less than 8 percent of the overall sample indicated that they were very familiar with IPM as a means for controlling weeds, insects, and other threats to crop yield. Black farmers were less familiar with IPM than white farmers. Alabama black farmers were most unfamiliar with IPM compared to other categories of producers. About a third of the farmers believed that IPM would be practical for their operation, but more whites in each state said that it was not very practical. About three-quarters of the black operators had no opinion.

Only a small number of respondents reported implementing any IPM practices. Georgia white farmers reported using more practices than any other category of producer. The main problems associated with IPM pertained to the expense of the chemical and the costs of crop scouting. Older farmers had adopted fewer practices, but age was not otherwise related to the IPM adoption variables. Farmers with more farm sales were more familiar with IPM. Farmers who work more days off the farm adopted more IPM practices, but the number of days the spouse worked off the farm was negatively related to the number of IPM practices adopted. Those who raised row crops saw IPM as more practical, they indicated more reasons for using IPM, and had actually implemented more IPM practices on their farms. Farm sales as a percent of total income was a consistent predictor of the IPM adoption variables. Farmers who were more dependent on farm income were more aware of IPM, were more convinced of its practicality, gave more reasons for using it, and had actually implemented more IPM practices on their farms.

- ***NRCS Action –*** Effort to communicate environmentally-friendly IPM practices to small and limited resource crop farmers should emphasize low-cost, no-cost interventions that reduce risk and have the potential to increase crop quality if not quantity, as well as farm income.

Conservation Buffers (CB)

Familiarity with Conservation Buffers (CB) varied markedly between black and white farmers. More whites than blacks reported using grass filter strips on their farms. More white farmers used each of the various kinds of conservation buffers than black farmers. Whites consistently viewed CB as more useful than black farmers. The main perceived problem with CB was that they take too much land out of production and are costly to build and maintain. There were no consistent differences by race, but white farmers were more likely to cite problems. The option to indicate that they had tried buffers and they did not work was provided in the questionnaire, but was not selected by any respondent.

Approximately 38% of black farmers responded that they were not at all familiar with buffers compared to approximately 23% of white farmers. Similarly, over half the black farmers had no opinion about the practicality of the use of conservation buffers as compared to approximately one third of white farmers. Thus, CB remain widely unadopted among black operators.

- ***NRCS Action –*** In order to assess and increase familiarity and the practicality of conservation buffers, outreach activities could include the use of color pictures, illustrations, and short descriptions of alternative conservation buffer practices. These illustrations should depict buffers that are suitable for use in the local area, as well as the situations where buffers are most appropriate. The use of these visuals will help to ensure that farmers have a shared understanding of the purpose and practicality of this intervention.

- ***NRCS Action –*** Work with small and limited resource farmers to use buffers that can be linked to identifiable ways to enhance or diversify farm income. Examples include: growing trees for wood products, producing high quality hay for livestock, and/or producing specialty crops such as highly valued

seeds. Such assistance should feature alternatives for land taken out of production that still yield economic returns.

Conservation Program Participation

Of those with conservation plans, about 26 percent indicated that the plan was fully implemented, and another 27 percent indicated it was ¾ completed. Whites consistently reported higher levels of conservation plan completion in each of the three states. A fourth of the black farmers said their plans were less than 25 percent completed.

The Conservation Reserve Program was the most often cited government program in which respondents participated. The rates of participation in the different programs varied widely across states and race categories, but were most nearly equal by race in Georgia. Less than a fifth of the respondents cited a lack of understanding of program requirements for not participating in the various conservation programs that were mentioned to them. Mississippi white farmers were least likely to indicate this problem at 11 percent, but 23 percent of the Mississippi black farmers felt this way. Around 10 percent said they could not afford to sign up for CRP.

Education was a significant predictor of whether or not the operator had a conservation plan, what proportion of that plan was implemented, the frequency of NRCS contacts, and satisfaction with NRCS assistance. Operators with more farm sales were more likely to have implemented a higher proportion of their conservation plan, to have more NRCS contacts, and to be more satisfied with those contacts. Operating more acres was positively associated with each of the plan and contact variables. Larger operators were more likely to have conservation plan, to have more of it implemented, to have more NRCS contacts, and to be more satisfied with NRCS assistance. Row crop farmers were more likely to have a plan and to have more of it implemented. Similarly, fruit and vegetable farmers were likely to have a plan, because it is often a required condition for receiving government payments. Those who received such payments were more likely to have a farm plan, to have more of it implemented, to have more NRCS contacts, and to be more satisfied with NRCS.

Half the sample had no contact with NRCS in the past year, but differences by race and state were not statistically significant. Mississippi farmers reported the most frequent contacts. Around 2/3 indicated contacts through visits to county offices, a third by letter. Georgia had the highest rates of no contact.

Respondents were asked to indicate their satisfaction with the information or services received from NRCS. Overall 80 percent were very or somewhat satisfied with this conservation agency. Whites were more satisfied than blacks in Alabama and Mississippi; the proportions satisfied were equal in Georgia. Seventeen percent of Alabama black farmers were dissatisfied compared to 7 percent or less in all the other state or race categories.

Those with more education, more land, and higher levels of government payments were more likely to have a conservation plan, to have a greater proportion of it implemented, to have more previous contacts with NRCS, and to express higher levels of satisfaction with the services they received from the agency. Farmers with higher gross sales had implemented more of their conservation plans, had more contacts with NRCS, and

were more satisfied with the agency. Men and those with income from row crops were more likely to have a conservation plan and to have more of it implemented. Those more dependent on farming for income were more likely to have a conservation plan and to indicate that they had more of it implement. They also had more contacts with NRCS, but were not more satisfied with the agency's services.

- ***NRCS Action –*** This study shows that developing a conservation plan is the linchpin for installing conservation systems. In order for NRCS field staffs to work with people who have not participated in conservation programs previously, it is essential to allocate time and effort toward developing conservation plans. This type of **commitment** needs to be made by NRCS managers and field office staff in order to successfully work with the various groups identified in this study. NRCS managers should apply both incentives and disincentives to field staffs to increase the number of conservation plans developed with these low income and minority groups.

- ***NRCS Action –*** NRCS can provide assistance to small and limited resource farmers concerning the relevance and applicability of CRP continuous sign-up for their operation. A sound economic analysis must be undertaken for row crop operators in order to compare up-front incentive and rental payments to gross farm sales.

Information Sources

Limited resource farmers consistently ranked the cooperative extension agent as the most important information source across states and race categories, except white Alabama farmers. This segment ranked extension as the third most important source. In each state, black farmers gave higher importance ratings to extension than white farmers. Farm magazines or newsletters were the next most important source. The third most important information source was "another farmer or family member." This source was particularly important for white farmers in Alabama—rating even higher than extension for that group, but there were no significant differences by state or race. NRCS was fourth ranked as an information source in the overall sample. Black farmers, particularly in Alabama and Mississippi, tended to give higher ratings to NRCS as a conservation information source but these differences were not statistically significant.

- ***NRCS Action –*** NRCS should work cooperatively with local Extension, agricultural chemical dealers, and other technical farm specialists when formulating CORE 4 recommendations for implementation by small and limited resource farmers. Realistic interventions couched in the language and realities of target farming systems will be more readily understood and adopted by small and limited resource farmers.

- ***NRCS Action –*** When communicating with Black small and limited resource farmers about conservation relative to the adoption of conservation practices/programs, NRCS technical specialists should partner with county Extension personnel or others with close working relationship with minority farmers. Once the initial contact has been established, quarterly follow-up is suggested.

Information Delivery Mode

About 64 percent of the sample indicated that printed materials such as bulletins, newsletters, and other publications were their preferred means of receiving information. There were no statistically significant differences by race or state. Farm Service Agency offices were the next most frequently cited, by 41 percent of the sample. There were no significant differences by race or state. Black farmers preferred group meetings or seminars more than whites did, a statistically significant difference. Similarly, blacks preferred workshops more than whites did.

Black farmers did prefer university specialists as information sources more than white farmers. They also preferred electronic media for home use such as videotapes more than white farmers. Both differences were statistically significant. Whites preferred news media more than blacks, a statistically significant difference.

- ***NRCS Action –*** NRCS should develop videotapes that present information about the practice/ program and services of the Agency. This videotape should use state personnel and examples to present and illustrate information in the context of local customs, values, and vocabulary.

- ***NRCS Action –*** NRCS staff should contact local leaders and assist them run local meetings that present information on the types of technical and financial assistance available for conservation activities. Other agencies (i.e., FSA and Extension) and private groups should also be involved.

Land and Water Resources

More white farmers reported owning larger acreages in each state. Nine percent owned no land. Slightly more blacks than whites in each state owned no land. A third of the sample rented land from other farmers, but the pattern of differences was not statistically significant. More Mississippi and Alabama black farmers rented land from others, but more Alabama farmers of both races rented land from others than farmers in other states.

Creeks or streams were the most frequently reported on-farm water resources. Nearly half the farmers had a creek or stream on their property, but about 30 percent had no water body or watercourse on their land at all

- ***NRCS Action –*** Efforts to expand the acreage treated with Core 4 practice among small and limited resource farmers must recognize the diverse set of tenure and landholding arrangements that characterize this segment of the farm population. In particular, the ways that these arrangements discourage, and sometimes provide perverse disincentives, to adopting Core 4 practices must be anticipated and understood.

CONCLUSION

Reaching the unaware and the uncommitted with the basic precepts of land management will require an extended effort of outreach and technical support. Black and white limited resource farmers who participated in the study differed in a number of basic ways. More black farmers had less than a high school education and more white farmers tended to grow row crops and engage in other more intensive farm

enterprises. The findings call for more focused outreach efforts to black farmers.

- ***NRCS Action –*** NRCS must accelerate its outreach efforts to small and limited resource farmers. Outreach activities must include developing an information and education program about the practicality and benefits of the "Core 4" practices. Sound economic analysis of the costs and benefits of the "best mix" of core practices must be undertaken. Given the finding that half the study sample (no significant difference by race) had no contact with NRCS in the past year, designated time periods for follow-up must be specified.

- ***NRCS Action –*** Future outreach strategies to Black small and limited resource farmers must have specific objectives to increase Black farmers' familiarity and understanding of how to use the Core 4 practices. These objectives can best be accomplished by the cooperative efforts of NRCS and local Extension specialists.

Many of our survey respondents of both races had college educations and advanced degrees, pointing to the rapidly growing segment of part-time, hobby, and lifestyle farm residents that may have felt and unfelt needs for guidance on land treatment strategies.

The challenge to public agencies is to provide timely and appropriate responses to the felt needs for technical assistance. In addition, the agencies must find a way to stimulate a demand for conservation assistance by increasing awareness of the practical tools that are available for protecting soil resources and water quality.

We identified perceived barriers and disadvantages to the implementation of core conservation practices. Each set of core conservation practices has obstacles to implementation by the full gamut of small and limited resource farms.

Some obstacles reflect defects and limits in the outreach mechanisms of the public agencies. Some reflect limits in the applicability and fit of the recommended practices on each individual small and limited resource farm. A third set of limits to implementation bear on the interests and capabilities of the individual farm operator. Age, personality, financial capability, and technical capacity all shape an individual farm operator's ability to consider and use the interventions recommended by NRCS and other public agencies.

- ***NRCS Action –*** Particularly in the case of black farmers, there may be local organizations that have close relationships with operators that can more effectively communicate Core 4 practices and the possibilities for technical assistance available from NRCS.

- ***NRCS Action –*** Differences in personal income may require NRCS to use alternative low cost technologies in planning and implementing Core 4 practices such as conservation buffers. Movable water sources and low cost fencing could be used on small acreages that support small herds of cattle. District programs that would allow for renting no-till drills could be used for conservation tillage activities.

The data revealed a large segment of operators who had no contact with NRCS or other public agencies. It was not that core conservation practices have been tried and

found wanting on these farms; rather, they have been found wanting to be tried.

- ***NRCS Action –*** Under certain conditions, NRCS must rely on the goodwill and respect that farmers have for other farm agencies, particularly the Cooperative Extension Service, that are already well-regarded and familiar to farmers.

- ***NRCS Action –*** Although no public agency is without its limits, NRCS' conservation partners often have access to and relationships with small and limited resource farmers that would be difficult or inefficient to duplicate.

- ***NRCS Action –*** NRCS must continue to nurture and strengthen the Conservation Partnership with the private sector. This can be most effectively done using local Resource, Conservation and Development Councils (RC&D). These councils have the advantage of being locally based with representation from local businesses and organizations, including non-profit groups.

- ***NRCS Action –*** NRCS has ongoing efforts to develop working relationships with community-based organizations and educational institutions that could help communicate programs to small and limited resource farmers.

Other public agencies and nongovernmental organizations might help overcome cultural and language differences that sometimes interfere with minority participation in farm programs. These partners can help address the special needs of small-scale and limited-resource enterprises in implementing the technological improvements, alternative enterprises, and conservation measures that protect the land and enhance water quality.

- ***NRCS Action –*** NRCS can direct small farmers to other USDA agencies such as Rural Development to assist with low cost loans.

- ***NRCS Action –*** NRCS can partner with other USDA agencies and non-profit organizations to provide low interest loans and/or grants to small and limited resource farmers.